



Table of Contents

1	Safety Precautions	2 p
	1. Important Safety Instructions 2. Notice	
2	Before You Begin	4 p
	1. Main Features 2. Accessories	
3	Hardware Descriptions	6 p
	1. Front Panel 2. Rear Panel 3. Remote Control Unit	
4	Connections Diagram	10 p
	1. Receiver to TV with RF 2. Receiver to TV and VCR 3. Receiver to Digital Audio Equipment 4. Connecting to Dish	
5	Guide of Functions	14 p
	1. Select Service 2. Information Window 3. Multi-Picture Display 4. Electronic Program Guide(EPG) 5. Satellite List 6. Favorite Group 7. Volume Control 8. PAUSE 9. Sub-Title 10. Audio Track 11. Time shifting, Recording and Playback	
6	Guide of Main Menu	21 p
	1. Configuration 2. Installation 3. Utilities 4. Service List	
7	Troubleshooting	31 p
8	Specifications	32 p
9	Multi-Brand IR Remote Controller	34 p

Safety Precautions

1. Important Safety Instructions

- ① Read these instructions.
- ② Keep these instructions.
- ③ Heed all warnings.
- ④ Follow all instructions.
- ⑤ Do not use this apparatus near water.
- ⑥ Clean only with dry cloth.
- ⑦ Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- ⑧ Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- ⑨ Do not reverse the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- ⑩ Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- ⑪ Only use attachments/accessories specified by the manufacturer.
- ⑫ Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- ⑬ Unplug this apparatus during lightning storms or when unused for long periods of time.
- ⑭ Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD DO NOT EXPOSE THE SET TO RAIN OR MOISTURE.

2. Notice

- ① These serving instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
- ② The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
- ③ The mains plug is used as the disconnect device. The disconnect device shall remain readily operable.



TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER(OR BACK). NO USER-SERVICEABLE PARTS ARE INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The Lightning Flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product

Before You Begin

1. Main Features

- ✓ Max. 500GByte external USB 2.0 Host HDD supporting for Time Machine & Live Recording or Playback simultaneously & Powerful Trick mode Scheduled(Event) recording though Electronic Program Guide (EPG)
- ✓ Time shift up to Max 2 hours if external HDD is connected.
- ✓ Support Extended 8-Day EPG
- ✓ Premium Grade VFD displaying 8 character(CH name & Local Time), Recording mode(Record & Play mode), Status Icons (TV/Radio, Dolby Sound, CAS, Sleep, Time manager, Rock Channel and USB contents)
- ✓ Dual USB 2.0 Host Slot(MP3 Player & JPEG Viewer)
- ✓ MPEG-II Digital & Fully DVB Compliant
- ✓ True Blind Scan
- ✓ Multi-LNB Controlled by DiSEqC Control Version 1.0, 1.1, 1.2 and USALS Compatible
- ✓ Multi-Satellite Search
- ✓ On-Screen Display with 65535 Color Full Resolution
- ✓ Favorite Channel Groups
- ✓ Powerful Channel Control by Favorites, Lock, Skip, Move and Delete
- ✓ Channel Sorting by Alphabet, Transponder and CAS
- ✓ Multi-language Supported (OSD & Menu)
- ✓ Teletext / Sub Title Supported
- ✓ Maximum 10,000 Channels Programmable
- ✓ Multi-picture Display
- ✓ Parental Lock / Receiver Lock
- ✓ CVBS Video & Audio Output via RCA
- ✓ Component Y/Pb/Pr Output via RCA
- ✓ S-VHS Video Output
- ✓ Optical & Coaxial Output for Digital Audio
- ✓ Software & Channel Database Upgrade via RS-232 & USB
- ✓ Premium Grade Universal Remote Control
- ✓ Smartcard Reader

2. Accessories

User's manual



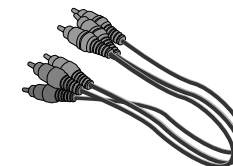
Remote Control



AAA size Batteries X 2



RCA Cable



External USB Memory

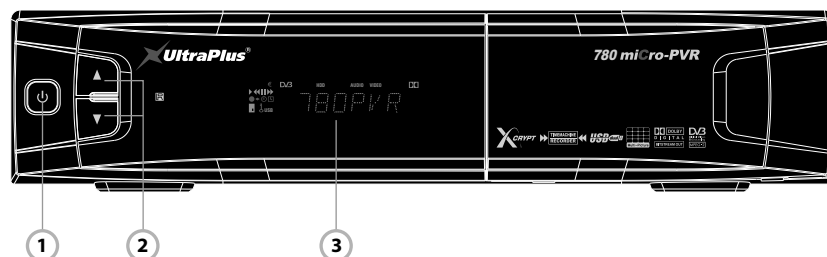


NOTE

If any accessories listed above are missing, contact the sales representative where you purchased this unit

Hardware Description

1. Front Panel Configuration



1. POWER Button

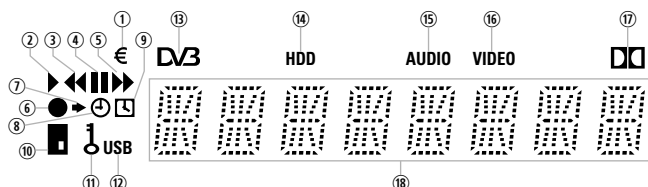
Press to switch between **STANDBY** and **POWER ON** modes.

2. CH Up/Down Button

Press to change services in normal mode, to move the highlighted-bar **UP/DOWN** in menu mode.

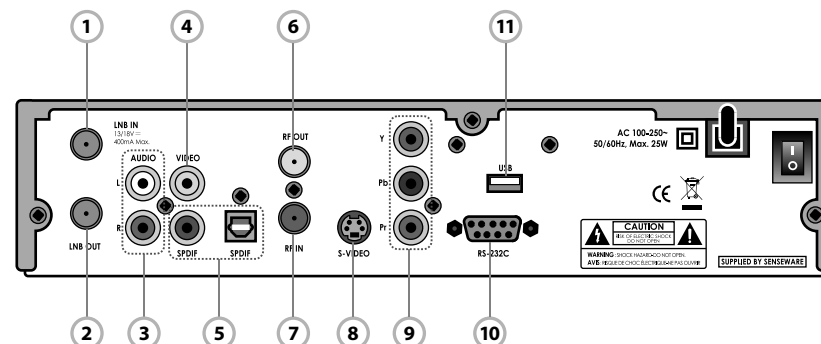
3. VFD(Vacuum Fluorescent Display)

The VFD consist of 8-digit letter and various icons. These letters and icons display the status of receiver as follows.



- ① € : Indicates that current service is pay channel.
- ② ▶ : Turned on during playback.
- ③ ◀◀ : Turned on during rewind in playback mode.
- ④ || : Indicates that current service is paused.
- ⑤ ▶▶ : Turned on during fast forward in playback mode.
- ⑥ ● : Turned on during recording.
- ⑦ ➡ : Turned on when you press a button in remote controller.
- ⑧ ⌚ : Indicate that sleep timer is set up.
- ⑨ ⌚ : The time that is set with timer manager is come, this icon is turned on.
- ⑩ 📠 : Indicates that smart card is inserted.
- ⑪ 🔒 : Indicates that current channel is locked.
- ⑫ USB : Indicates that external USB device is connected.
- ⑬ DV3 : Turned on during live mode.
- ⑭ HDD : Indicates that set-top box is accessing files in the external USB device.
- ⑮ AUDIO : Indicates that current service is radio service.
- ⑯ VIDEO : Indicates that current service is TV service.
- ⑰ 🔊 : Indicates that current service supports Dolby digital audio.
- ⑱ 📺 : Display service name, time and other information with letter.

2. Rear Panel Configuration



- 1. **LNB IN** : Use to connect a satellite antenna.
- 2. **LNB OUT** : Use it when connecting to another STB for loop-through.
- 3. **AUDIO L/R** : Use to connect audio left, right of TV or VCR.
- 4. **VIDEO** : Use to connect to video input of TV or VCR.
- 5. **SPDIF** : Use to connect SPDIF to digital audio equipment. (Coaxial or Optic)
- 6. **RF OUT** : Use to connect to RF(ANT) input jack of TV.
- 7. **RF IN** : Use to connect a general Aerial Antenna.
- 8. **S-VIDEO** : Use to connect to S-VHS video input on your TV or VCR.
- 9. **Y/Pb/Pr** : Use it when connecting component video to TV.
- 10. **RS-232C** : Use it when connecting to your PC.
- 11. **USB** : Use to connect to external USB device

3. Remote Control Unit



1. **POWER** : Turns the STB On/Off.
2. **RECORD** : To start recording.
3. **STOP** : To stop time shifting, play back or recording
4. **PAUSE** : This key is used to pause the video. Press once more to resume the video.
5. **REWIND** : Rewind when the progress bar is displayed. Start reverse playback. Change the speed of reverse playback.
6. **PLAY/TIME SHIFT** : Display the progress bar of time shifting or playback when no progress bar is displayed. Start playback with normal speed. Return to normal speed from trick mode.

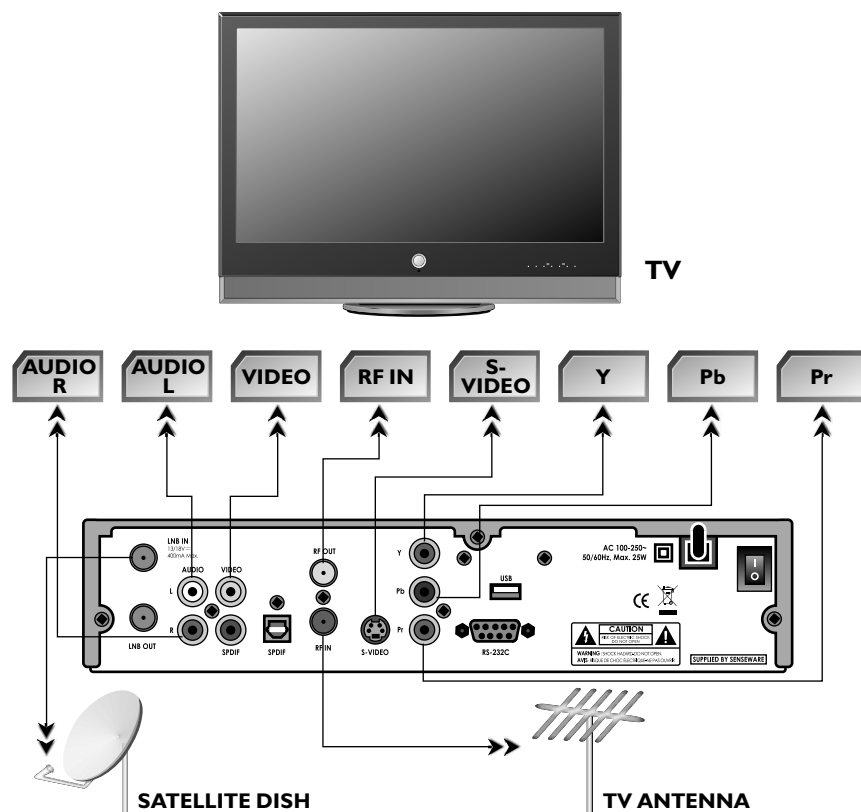
7. **FAST FORWARD** : Start fast forward or fast motion playback. Change the speed of forward playback.
8. **PREV FILE** : To play the previous MP3 file in MP3 play mode.
9. **NEXT FILE** : To play the next MP3 file in MP3 play mode.
10. **COLOR Keys** : Used for special function in menu. **RED** key is used to add or delete the current position as a bookmark. **GREEN** key is used to go to the next bookmark position. **BLUE** key is used to display multiple pictures
11. **ARROW** : Moves the highlight bar for selecting options on the menus. And this key is used to change services(**CH▲ / CH▼**) or change audio volume(**VOL▲ / VOL▼**).
12. **OK** : Shows the service list in non-menu mode and select an item or confirm in menu mode.
13. **EPG(Electronic Program Guide)** : Show the TV/Radio program guide.
14. **MUTE** : Turns the sound On/Off.
15. **INFO** : Shows the information of the current program. If you press one more, detail information box will be shown.
16. **MENU** : To enter the main menu or to exit from the menu.
17. **RECALL** : Moves to previous service.
18. **SAT** : To change the satellite groups.
19. **EXIT** : Return to the previous menu or Exit from pop-up window.
20. **PLAY LIST** : To display recorded service list.
21. **FAV** : To change the favorite groups.
22. **NUMERIC Keys** : Controls the numerical operation and service numbers directly.
23. **TV/RADIO** : Switches between TV and Radio.
24. **TV/SAT** : Toggles the TV output source between the satellite input and UHF/VHF antenna input.
25. **TELETEXT/SUBTITLE** : To Show digital teletext or multilingual subtitle.
26. **AUDIO** : To show Audio Track or Sound Mode.

NOTE When inserting batteries, make sure that the polarity (+/-) is correct.

Connections Diagram

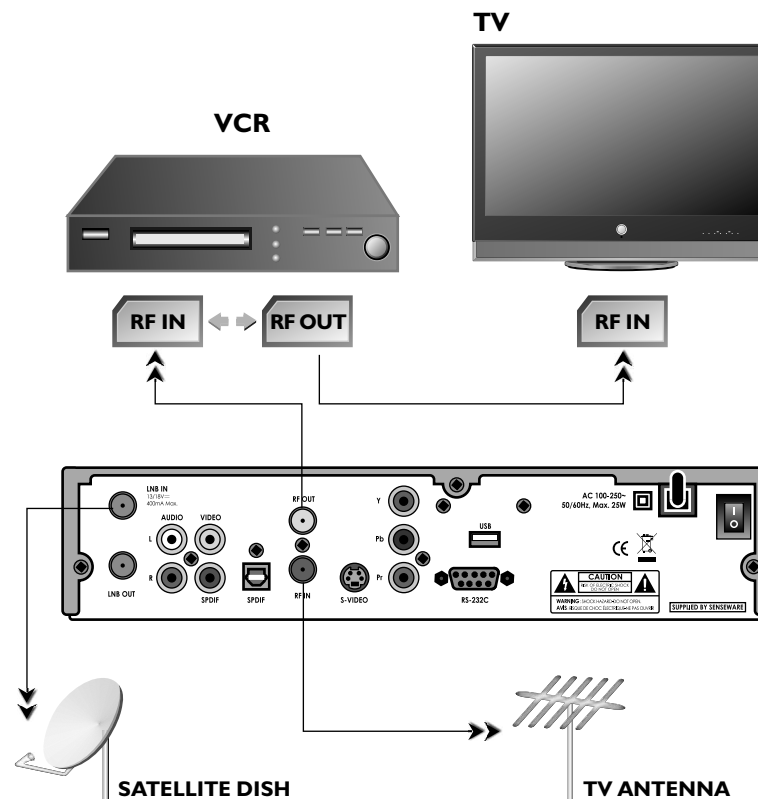
1. Receiver to TV with RF

- ① Connect the satellite antenna cable to LNB IN.
- ② Connect the TV antenna to RF IN.
- ③ Connect the RF OUT to RF IN of TV.
- ④ Connect the VIDEO and AUDIO L, R to VIDEO IN and AUDIO L, R IN of TV.
- ⑤ Connect the S-VIDEO to S-VIDEO IN of TV (If necessary).
- ⑥ Connect the Y, Pb, Pr to Component input(Y, Pb, Pr) of TV (If necessary).



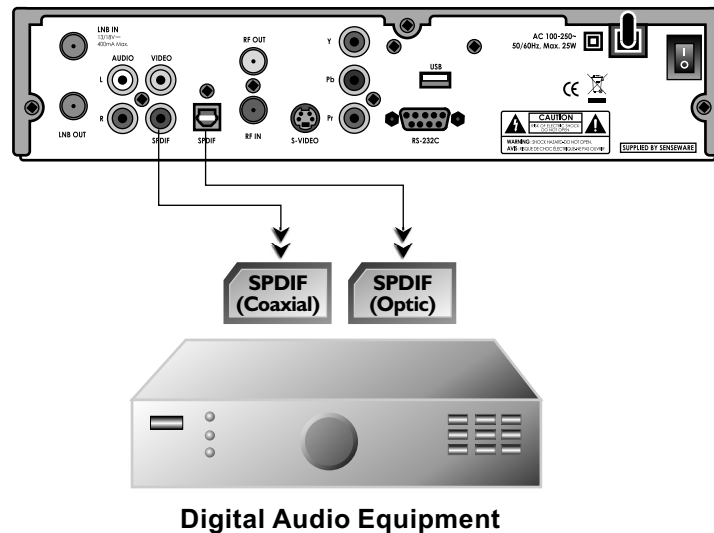
2. Receiver to TV and VCR

- ① Connect the satellite antenna cable to LNB IN.
- ② Connect the TV antenna to RF IN.
- ③ Connect the RF OUT to RF IN of VCR.
- ④ Connect RF OUT of VCR to RF IN of TV.
- ⑤ Connect other jacks to the appropriate jacks of TV refer to above section, *1. Connect to TV.*



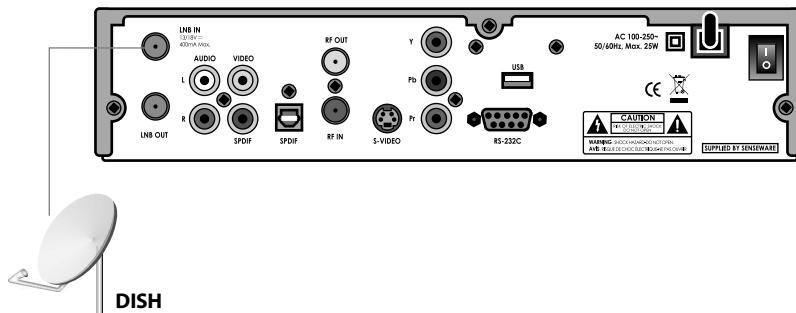
3. Receiver to Digital Audio Equipment

- ① To get better quality audio, you can use digital audio via coaxial or optic cable. If you have a digital audio equipment, connect SPDIF to Digital audio input of the equipment. (Coaxial or Optic)
- ② Connect other jacks to the appropriate jacks of TV or VCR refers to above section, 1. Connect to TV and 2. Connect to TV and VCR.

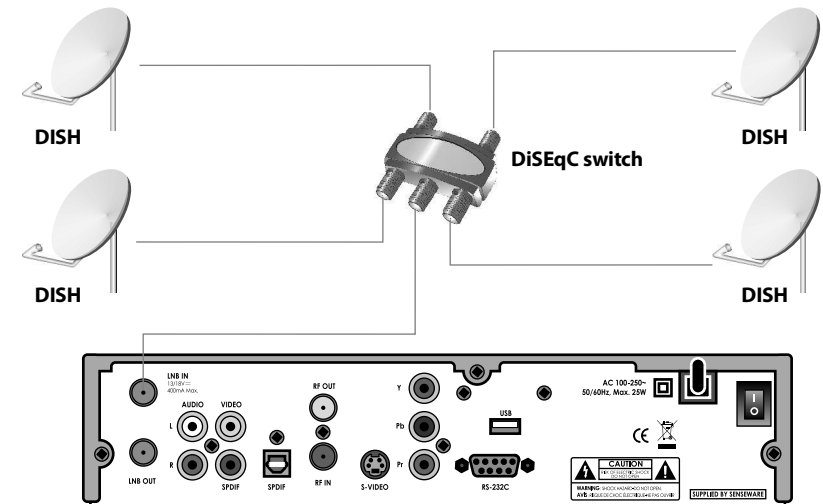


4. Connecting to Dish

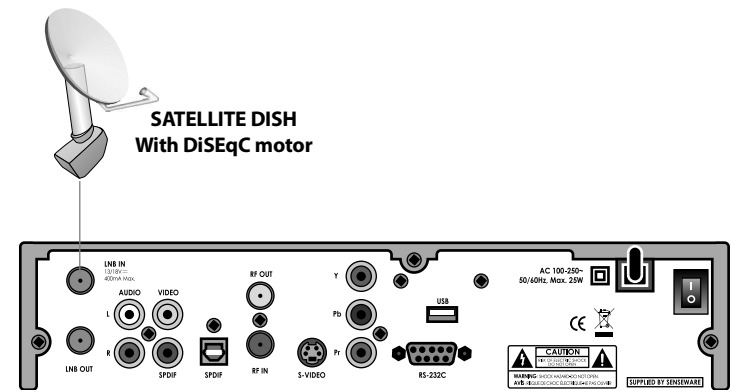
- ① Using Single DISH : Connect the Satellite Antenna cable to LNB IN.



- ② Using DiSEqC switch : Connect the cable of DiSEqC switch to LNB IN.



- ③ Using DiSEqC motor : Connect the cable of DiSEqC motor to LNB IN.



Guide of Functions

1. Select Service

To select the desired service, you can use below methods.

1.1 Using UP/DOWN buttons

You can navigate between services using **UP/DOWN** buttons. Whenever you press the **UP (DOWN)** button, current service will be changed to next(previous) service. You have to press **UP** or **DOWN** button until find the service you want.

1.2 Using NUMERIC buttons

If you know the service number, enter the number directly using **NUMERIC** buttons.

1.3 Using Service List

To select the desired service in the service list, you should firstly display the service list using **OK** button. Use **ARROW** buttons to select a desired service and press **OK** button.

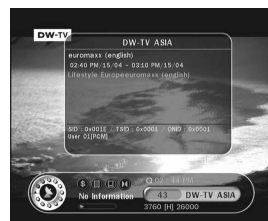
In the Service List window, you can also use additional functions with **COLOR** buttons.

Press **RED** button, you can sort the services by Alphabet, Transponder, Group and CAS. Press **GREEN** button, you can add the service to one of 10 favorites.



2. Information Window

If, you want to view the current service information window press **INFO** button. Then the Information window will appear. This Information window is automatically displayed when changing services. This window contains many items such as service number, service name, scrambled service, Teletext, subtitle, Dolby Digital symbol, duration time and so on. Press **INFO** button once more, you can get more detailed information.



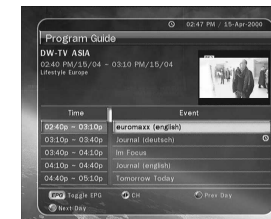
3. Multi-Picture Display

Press the **BLUE** button to display multiple pictures and **RED** button display 9 or 12 multiple pictures option.



4. Electronic Program Guide(EPG)

Electronic Program Guide (EPG) helps you navigate through all the possible viewing options. The EPG supplies information such as program listings, start/end times and detailed information about the program listings for all available services. The availability and amount of these program details will vary, depending on the particular broadcaster.



- 1 If you press **EPG** button, EPG menu will be displayed.
- 2 Press the **ARROW** buttons to move to other service or to see previous/next guide.
- 3 Press **EPG** button once to view full EPG (Entertainment Program Guide) and press button twice to view only selected EPG. Press button consecutively to go back and forth.
- 4 Press **GREEN** button to view next day EPG and **RED** button to view EPG for previous day.
- 5 Select the program by using the **ARROW** buttons then set the timer by pressing **OK**.
- 6 You can make a reservation for recording on EPG menu.
 - Press **RECORD** button to reserve the event. This reservation can be checked under the Timer Manager Menu.
 - To cancel the reservation for recording by **RECORD** button at the appointed event.

5. Satellite List

Select the **SAT** (satellite) button to view all satellite listings. Scroll through the various satellites using the **ARROW** buttons, and select the appropriate satellite by pressing **OK**.

6. Favorite Group

Select the **FAV** (favorite) button to view all favorite groups. Scroll through the various favorite group using the **ARROW** buttons, and select the appropriate satellite by pressing **OK**.

7. Volume Control

- 1 To control audio volume while you are watching a service, press **LEFT/RIGHT** button to control volume.
- 2 Volume control bar will be appeared in top of the screen.
- 3 When necessary, press **MUTE** button to turn audio sound on/off.

8. PAUSE

The **PAUSE** button is used to freeze the video. Press **PAUSE** button once more to resume the video.

9. Sub-Title

To display Sub-title press **SUBTITLE** button on your remote control. Sub-title is based on the transmitted data.

10. Audio Track

You can select the audio language list by pressing the **AUDIO** button. Use the **ARROW** buttons to choose the audio track from the list than press **OK** to change.

11. Time shifting, Recording and Playback

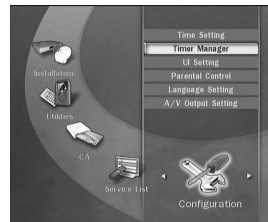
11.1 Recording

- ① **Recording Method:** There are two types of recording method.
(Time Reserved Recording / Event Reserved Recording).

a) Time Reserved Recording:

In Timer Manager you may set your time/program during this process.

- **Main Menu - Configuration - Timer Manager.**



- Press **GREEN** button to activate the new timer edit screen



- Timer Edit screen you may choose start time, end date/time, mode, type (Recording/Play) and simply press 'Yes' button to reserve you recording schedule. Also, you must set you start time and end time to minimum of 5 minutes; start time must be present time.

b) Event Reserved Recording:

EPG screen choose the event you wish to reserve or record.

- During LIVE TV press **EPG** button to access EPG screen.



- Go to the event which you wish to view and then press **OK**.
The event will be reserved with **BLUE play icon**.
This BLUE play icon means that you want to just watch the event at the reserved time.



- Press the **OK** one more time then the event will be reserved with **RED dot icon**. This RED dot icon means that you want to record the event at the reserved time.

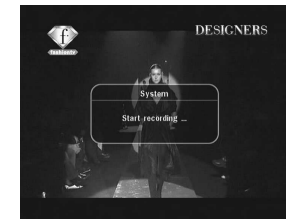


- When you set an event for recording in EPG. It automatically set in the Timer Event in **Main Menu - Configuration - Timer Manager**.



② Instant Recording:

At anytime, you may press **RECORD** button to start you recoding instantly.



③ Recording Edit:

During recording, you may press **RECORD** button to edit recording duration time. As it defaulted to 2 hours but you may increase or decrease as you desire.



④ Long Time recording:

During long time recording process 4GB or more, additional files may be created every 4GB. (For example; aaa.ts, aaa.ts1, aaa.ts2... and so on) You must remember not to erase any of duplicated file. These files are only able to view with your PC not with receiver.

⑤ Pause during recording

a) Press **PAUSE (||)** button to pause the live TV but will continue to record to you external HDD.



- b) Press **PAUSE** button once again and event will resume from the pause time.



- c) During recording press **PLAY** button to show Play bar screen.



- d) Play bar screen you may use the **RIGHT/LEFT** button to move freely in recorded time.



- e) If you press **STOP** button it will stop recording and you may press **PREV FILE** (◀) button to view recorded file from the beginning.

11.2 Time shift

NOTE

Time shift works when you set time shift 'On' in the option of main menu-Configuration-UI Setting-Time Shift(USB).

- 1 Press **PAUSE** button to pause the live TV but will continue to record to external memory.
- 2 Press **PAUSE** button once again and event will resume from the pause time.
- 3 During watching live TV press **PLAY/TIMESHIFT** button to show play bar screen.



- 4 During play bar screen you may use the ◀ / ▶ **ARROW** buttons to move freely in recorded time.

- 5 If you press **STOP** button during timeshift, screen will be changed to live TV. You may press **PREV FILE** (◀) button to move to start location in recorded time.

11.3 Playback

- 1 Press the **PLAY LIST** button to activate the Play List screen.



- 2 In Play List you may choose any of pre-recorded event(s) and play it by pressing **OK** button.



- 3 In Play List screen, you may press **RED** button to choose the event you wish to view in order listed in Play List.



- 4 In Play List screen, **GREEN** button to delete or rename already recorded event.



- 5 You may press **PAUSE** button at any time to pause a pre-recorded event.



- ⑥ Press **PAUSE** button once again to resume play of the recorded event.



11.4 Bookmark

- ① During Play bar you may move to desire time and book mark by pressing the **RED** button. Bookmark(s) are indicated with Red Dot on the play bar.
- ② Also, You may press **RED** button to activate play bar to mark your bookmark(s).
- ③ On play bar any pre-marked bookmarks can be move from bookmark to bookmark by pressing the **GREEN** button.
- ④ Any Bookmark you wish to remove goes to the bookmark you wish to remove by pressing the **RED** button.



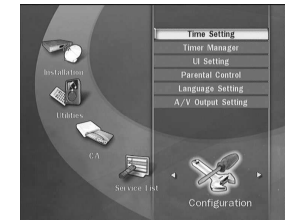
11.5 Trick mode

- ① During play, press the **FAST FORWARD** button once to 2X faster than regular playing speed and once more to 3X faster.
- ② During play, press the **REWIND** button once to 2X faster than regular playing speed and once more to return to regular play mode.



Guide of Main Menu

To display the menu, press **MENU** button at any time. You can select the sub menu using **ARROW** buttons. The selected sub menu becomes highlighted. When you have selected the sub menu you want, press the **OK** button. If you want to return to the previous menu, press the **EXIT** button. And if you want to exit from the menu, press the **MENU** button.



1. Configuration

1.1 Time Setting

- ① **Time Setting:** To set the current time, you can use two modes; **Auto** and **Manual**.

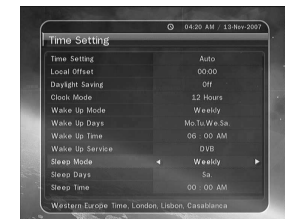
Auto Time Setting

Current time is automatically updated by the GMT from live signal.

- **Local Offset :** Enter the offset value using the standardized information of current service area.
- **Daylight Saving :** If you want to apply daylight saving, select the country using **ARROW** buttons.

Manual Time Setting

- **Date :** Enter the calendar date by using **ARROW** buttons then press **OK** to finish.
- **Time :** Enter the time by using the **NUMERIC** buttons.



- ② **Clock Mode :** Select the type of clock display(12 Hours or 24 Hours) using **ARROW** buttons.
- ③ **Wake Up Mode :** Enter the time for the receiver to automatically power ON.
And you can choose one of Wake Up Mode as '**off**' or '**Once**' or '**Daily**' or '**Weekly**'.
 - **Wake Up Date :** Select the date when STB is turn on. Press **OK** button to display calendar.
 - **Wake Up Days :** Select a day of the week when STB is turn on.
 - **Wake Up Time :** Enter the turn-on time of STB using **NUMERIC** buttons.
 - **Wake Up Service :** Select the service when STB is turn on. Press **OK** button to display service list.
- ④ **Sleep Mode :** Enter the time for the receiver to automatically switch OFF and go to standby mode.
And you can choose one of Sleep Mode as '**off**' or '**Once**' or '**Daily**' or '**Weekly**'.
 - **Sleep Date :** Select the date when STB is turn off. Press **OK** button to display calendar.
 - **Sleep Days :** Select a day of the week when STB is turn off.
 - **Sleep Time :** Enter the turn-off time of STB using **NUMERIC** buttons.

1.2 Timer Manager

Insert new timer entry or modify exist timer entry.

① To add new timer entry :

Press **GREEN** button. Timer Edit window will be popup. You can specify start date, time, duration and service for reservation. And you can choose one of Timer Mode as 'Once' or 'Daily' or 'Weekly'.

You can choose timer operation type as 'Recording' or 'Play'. If you choose 'Recording', it will start recording at that time. If you choose 'Play', it will change the service what you watch.



② To modify exist timer entry :

Choose one timer entry you want to modify and press **OK** button.

③ To delete exist timer entry :

Choose one timer entry you want to delete and press **RED** button.

If you reserve one or more event through the EPG menu, the reserved event(s) will be added to Timer Manager automatically.

1.3 UI Setting

① OSD Transparency : Set the OSD transparent type.

② Info Box Position : Set the information window position.

③ Info Box Display Time : Set the display duration of information window displayed on the screen after changing services.

④ Volume Bar Display Time : Set the display duration of volume bar displayed on the screen after changing volume.

⑤ Time Shift (USB) : Set 'On' to run time shifting function. In this case, time shifting function works automatically up to 2 hours if external USB device have enough space. If you set 'Off' this option, time shifting function never works.



1.4 Parental Control

Access to services and programs is controlled by a 4-digit secret code that is defined by the user. Whenever you attempt to access parental control menu, the pop-up window will instruct you to input a PIN code.(If necessary, you can change it.)

NOTE The default PIN code is '0000'

① Censorship : Set the parental guidance rating of highlighted censorship classification. The parental level is given as age-based numbers.

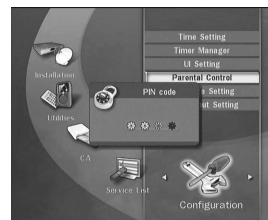
② Change Pin code : To change your PIN code, input the new PIN code using **NUMERIC** buttons. To verify the new PIN code, input the new PIN code again.

③ System : Set the accessibility of system.

④ Installation : Set the accessibility of Installation menu.

⑤ Configuration : Set the accessibility of Configuration menu.

⑥ Edit Service : Set the accessibility of Edit Service menu.



1.5 Language Setting

① Menu Language : Select the desired menu language by using the **ARROW** buttons.

NOTE

The Kind of languages can be changed depending on the country. Languages are subject to change without prior notice.



② Audio Language : Select the default language for audio when changing services. If no language is provided, then the default language of current service will be automatically selected.

③ Subtitle Language : Select the default language for subtitle when changing services.

1.6 A/V Output Setting

① TV Type : Select the TV types.(PAL/NTSC/Auto) In Auto mode, the STB is automatically selected as NTSC or PAL according to the service played.

② TV Aspect Ratio : Select the aspect ratio of TV which is connected to STB.(4:3/16:9)

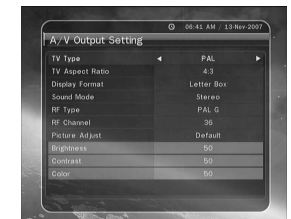
③ Display Format : Select the format which the video is to be displayed on screen.(Letter Box/Pan Scan) In case of 16:9 mode, this option is not available.

④ Sound Mode : Set the audio mode which is output from the RCA jack.(Stereo/Mono/Left/Right)

⑤ RF Type : Select the RF type. (PAL G/ PAL I / PAL K)

⑥ RF Channel : Select a RF channel.(21~69)

⑦ Picture Adjust : Adjust brightness, contrast and color of screen.



2. Installation

2.1 Dish Setting

Select the antenna and LNB settings for service search. The values that are set in this menu will be available for selection in other service searching menus.

① Satellite : Select the satellite what you want to search the service.

- Press the **LEFT/RIGHT** button to select the satellite.
- Select the wanted satellite name.
- If the desired satellite name is not listed then select User Defined.

② Frequency : Select frequency what you want to check the signal.



- ③ **LNB Power** : Select the LNB power.
- ④ **LNB Type** : Select the LNB type.
- ⑤ **LNB Frequency** : Select the frequency that is set to antenna.
 - Use the **LEFT/RIGHT** buttons to select the LNB frequency.
 - If the required LNB frequency is not listed, then enter the frequency manually using the **NUMERIC** buttons.
 - When you select Universal in LNB type, both 9750 and 10600 are supported at the same time. And LNB 22KHz setting is disabled.
- ⑥ **LNB 22KHz**: When you use a dual LNB or two antennas connected to a 22KHz tone switch box, make 22KHz tone switch enable or disable to select LNB or antenna.
- ⑦ **DiSEqC SW** : If you use a DiSEqC 1.0 or DiSEqC 1.1 switch, select one of the DiSEqC inputs.
- ⑧ **Positioner Setting** : Press **OK** button to move to Positioner Setting menu directly.
- ⑨ **Service Search** : Press **OK** button to move to Service Search menu directly.

2.2 Positioner Setting

- ① **Satellite** : Select the satellite what you want to search the service.
 - Press the LEFT/RIGHT button to select the satellite.
 - Select the wanted satellite name.
 - If the desired satellite name is not listed then select User Defined.
- ② **Frequency** : Select frequency what you want to check the signal.
- ③ **Positioner** : Select the positioner.

None

- **Dish Setting** : Press **OK** button to move to Dish Setting menu directly.
- **Service Search** : Press **OK** button to move to Service Search menu directly.

Using DiSEqC 1.2

- **Move** : To move the dish, press LEFT/RIGHT button.
- **Fine Move** : To move the dish in detail, press **LEFT/RIGHT** button.
- **Positioner Command** : To use various positioner command, press **OK** button. Then, available positioner commands will appear.
- **Dish Setting** : Press **OK** button to move to Dish Setting menu directly.
- **Service Search** : Press **OK** button to move to Service Search menu directly.

Using USALS

- **Fine Move** : To move the dish in detail, press **LEFT/RIGHT** button.
- **Dish Longitude** : Enter the longitude using the **NUMERIC** buttons.
- **Dish Latitude** : Enter the latitude using the **NUMERIC** buttons.
- **Go To** : Press **OK** button to rotate the dish to the configured position.
- **Positioner Command** : To use various positioner command, press **OK** button. Then, available positioner commands will appear.
- **Service Search** : Press **OK** button to move to Service Search menu directly.



2.3 Service Search

- ① **Satellite** : Select the target satellite for search.
- ② **Search Mode** : Select the following search mode.

Auto Search Mode

- **Search Type** : Select the search type.
- **Network Search** : You can select '**Off**' or '**On**'. When you select '**On**', you can find more transponders using the home network. As it refers to NIT during searching, if there is the frequency information of other transponder, it searches the other transponder besides the transponder that the user inputs.
- **Dish Setting** : Press **OK** button to move to Dish Setting menu directly.
- **Positioner Setting** : Press **OK** button to move to Positioner Setting menu directly.
- **Start Search** : Press **OK** button to start search.



Blind Search Mode

- **Frequency** : Set '**Auto**' to search whole frequency, Set '**Manual**' to search only desired frequency.
- **Polarity** : Select the polarity. (**All Polarity** / **Vertical** / **Horizontal**)
- **Search Type** : Select the search type.
- **Dish Setting** : Press **OK** button to move to Dish Setting menu directly.
- **Start Search** : Press **OK** button to start search.



Manual Search Mode

- **Frequency** : Select the frequency from the list to search.
- **Symbol rate** : Enter the symbol rate using the **NUMERIC** buttons.
- **Polarity** : Select the polarity. (**Vertical** / **Horizontal**)
- **Search Type** : Select the search type.
- **Network Search** : You can select '**Off**' or '**On**'. When you select '**On**', you can find more transponders using the home network. As it refers to NIT during searching, if there is the frequency information of other transponder, it searches the other transponder besides the transponder that the user inputs.
- **Dish Setting** : Press **OK** button to move to Dish Setting menu directly.
- **Start Search** : Press **OK** button to start search.



Advanced Search Mode

- **Frequency** : Select the frequency from the list to search.
- **Symbol rate** : Enter the symbol rate using the **NUMERIC** buttons.
- **Polarity** : Select the polarity. (**Vertical** / **Horizontal**)
- **Video PID** : Enter the video PID using the **NUMERIC** buttons.
- **Audio PID** : Enter the audio PID using the **NUMERIC** buttons.
- **PCR PID** : Enter the PCR PID using the **NUMERIC** buttons.
- **Start Search** : Press **OK** button to start search.



2.4 System Recovery

① System restore to factory default :

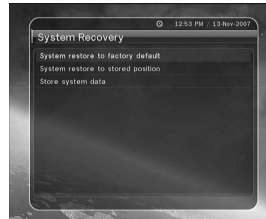
This menu allows you to restore the factory set values in case the user has encountered some problems after changing any new values of service data and others which may be in error. Press **OK** button to erase all services and restore default setting.

② System restore to stored position :

This menu allows you to restore the stored values including service data and system parameters. Press **OK** button to restore all data.

③ Store system data :

If you want to use system parameters and service data in the future, this menu allows you to store current state. Press **OK** button to store current state.



2.5 System Information

This displays general information about what hardware and software version your receiver is running on.



3. Utilities

3.1 USB

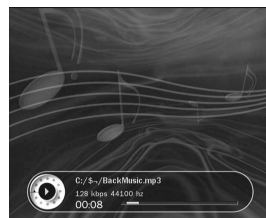
① **System Setting** : 780 miCro-PVR have two USB port. One is in the front panel and the other is in the rear panel. With this option, you can activate or inactivate these USB ports.

- **Rear** : Activate rear USB port. In this case front USB port is not available.
- **Front** : Activate front USB port. In this case rear USB port is not available.
- **Auto Detect** : Activate the USB port which is connected to external USB device automatically.



② MP3 Player :

Stick the external USB memory into the provided USB port on front panel. Once inserted, press **OK** button to read external USB memory stick and choose the MP3 file from the window you want to play.



③ Image Viewer :

You can display the image file that is in the external USB memory stick on the screen. Select the image file(JPEG format) and press **OK** button to display the image.



④ **Format** : Before you use your USB external device, we recommend for you to format it by Format(USB) menu.

NOTE If you execute format, all data will be deleted.



3.2 Data Transfer

① Transfer all System data to USB storage :

If you want to use system parameters and service data in the future, this menu allows you to store current state. Press **OK** button to store current state to external USB storage.

② Transfer Service data to USB storage :

If you want to use service data in the future, this menu allows you to store current service data. Press **OK** button to store current service data to external USB storage.

③ Data download from USB storage :

This menu allows you to download the stored data from external USB storage. Press **OK** button to download data.



3.3 Calendar

To display calendar, press **OK** button. Utilize **ARROW** buttons to choose the date, button **UP/DOWN** will switch from past/next month.



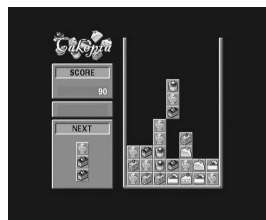
3.4 Calculator

To use a calculator, press **OK** button.



3.5 Games

To enjoy Game, press **OK** button.
And you can play the Game(CAKEPLA).



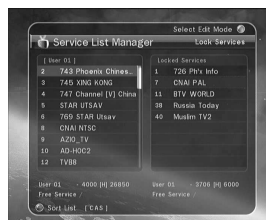
4. Service List

4.1 Service List Manager

Service List Manager menu will be appeared when press **OK** button.
You can select Edit Mode by press **YELLOW** button.

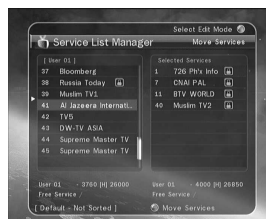
① Lock Services :

All service lists will be shown on left side of window, right side will show make service to be lock. By using **ARROW** and **OK** button you may move the chosen service to right side window to lock service.



② Move Services :

All Service Lists will be shown on left window, Service Lists for moving will be shown on right Window. Move the Service to Right window by using **ARROW** and **OK** button, then right window services will be moved to related location when select desired location from the left window.



③ Delete Services :

All service lists will be shown on left side of window. By using **ARROW** and **OK** button you may select services to be delete. And press **GREEN** button to delete the selected services.



④ Skip Services :

All service lists will be shown on left side of window, right side will show make service to be skip. By using **ARROW** and **OK** button you may move the chosen service to right side window to skip service.



⑤ **Set Favorites :** Press **FAV** button to mark the favorite group list. Once, favorite group is chosen, left side window will show all service list marked and right side window will show only the marked service list. Using **ARROW** and **OK** buttons you may add any service to the favorite group or delete any service from the favorite group.



⑥ Edit Service Name :

All service lists will be shown on left side of window.
Move the highlighted bar to the service what you want to edit its name and press **OK** button. Then you can see the virtual keyboard. Using **ARROW** and **OK** buttons, you can edit the service name.



4.2 Service List Option

① Service List Preview

Setting 'ON' :

If you change service using **ARROW** buttons and press **OK** in the Service List, service will be played which you want. But Service List still remains. To remove Service List on screen, press **OK** one more time.

Setting 'OFF' :

If you change service and press **OK** in the Service List, service will be played. And Service List disappear at the same time.



② Lock Favorite PopUp

Setting 'ON' :

If you press **GREEN** button to open Set Favorite menu, you must enter PIN code.

Setting 'OFF' :

PIN code is not required.

③ View Only Filtered List

Setting 'ON' :

If you sort services with any category(A~Z, Transponder, Group or CAS) in the Service List, only filtered services will be shown on the Service List.

Setting 'OFF' :

All services will be shown on the Service List. And filtered services are highlighted with yellow color.



Troubleshooting

Problem	Solution
Does not display any message on the front panel.	<ul style="list-style-type: none"> - Check the main power cable and check that it is plugged into a suitable power outlet. - Check you have switch the STB main power switch ON at the rear of the STB.
No Picture	<ul style="list-style-type: none"> - See 'Does not display any message on the front panel' above. - Check the video output port is firmly connected to the TV or VCR. - If you are using the RF output, check that the RF lead is connected firmly to the STB and TV/VCR. - Check that you have selected the correct channel or Video Output on your TV. - If you are using the RF Output, check that you have correctly tuned the UHF channel of the STB or TV. - Check the brightness level of the TV.
Poor picture quality	<ul style="list-style-type: none"> - See 'No Picture' above. - Check the signal level, if this is low then try adjusting the alignment of your dish.
No Sound	<ul style="list-style-type: none"> - See 'No Picture' above. - Check the volume level of the TV and STB. - Check the Mute status of the TV and STB.
Remote Control does not operate	<ul style="list-style-type: none"> - Point remote control directly towards the STB. - Check and replace batteries.
No or Bad Signal	<ul style="list-style-type: none"> - Check the LNB ; Replace LNB if necessary. - Check the cable from the LNB. - Check the position of the dish; realign dish if necessary. - If you are using a DiSEqC 1.0 switch, check that you have connected the LNBs to the correct connections on the switch. - Check the 'Signal Level' and the 'Signal Quality'.

Specifications

Tuner & Channel Decoder

Input Connector	F-type, IEC 169-24, Female
Loop through out	F-type, IEC 169-24, Female
Frequency Range	950MHz ~ 2150MHz
Input Impedance	75Ω, unbalanced
Signal Level	-65 to -25dBm
LNB Power	13/18VDC, max.400mA
22KHz Tone	(22±2)KHz, (0.6±0.2)V
DISEqC Control	VI.0/1.2/USALS Compatible
Demodulation	QPSK
Input Symbol Rate	2 ~ 45 Ms/s
FEC Decoder	1/2, 2/3, 3/4, 5/6 and 7/8 with Constraint Length K=7

MPEG Transport Stream A/V Decoding

Transport Stream	MPEG-II ISO/IEC 13818
Profile Level	MPEG-II MP@ML
Input Rate	Max. 15Mbit/s
Video Formats	4:3 LetterBox, 4:3 PanScan, 16:9
Video Resolution	720 x 576, 720 x 480
Audio Decoding	MPEG / MusiCam Layer I & II
Audio Mode	Stereo / Joint stereo / Mono
Sampling Rate	32KHz, 44.1KHz and 48KHz

Main System

Main Processor	Conexant Virgo(32-bit RISC CPU 180 MIPS)
Memory	Flash-ROM : 2 MBytes SDRAM : 32 MBytes

Audio / Video & Data IN/OUT

Video	CVBS Video Output (RCA) S-VHS Video Output (Mini-DIN) Y/Pb/Pr Video Output (RCA)
Audio L/R	RCA(Volume and Mute Control) AC-3 Dolby Digital (RCA & Optical)
RS-232C	9 pin D-SUB (Male) type, Transfer rate 115Kbps
USB	USB 2.0 Host Support (2 Slots)

RF Modulator

RF Connector	75Ω, IEC 169-2, Male/Female
Frequency	470MHz ~ 860MHz
Output Channel	CH 21 ~ 69 for the Remodulator
TV Standard	PAL G/I/K Selectable by Menu
Preset Channel	CH 36(or TBD) Software changeable by Menu

Front Panel

Slot	1 USB Host Slot 1 Smart Card Slot
Buttons	3 Buttons (CH UP/DOWN, STANDBY)
Display	VFD(Vacuum Fluorescent Display)

Power Supply

Input Voltage	AC 100 ~ 250V, 50/60Hz
Type	SMPS
Power Consumption	Max. 25W
Standby Power	Max. 8W
Protection	Separate Internal Fuse & Lighting protection

Physical Specification

Size (W x H x D)	260mm X 55mm X 210mm
Weight (Net)	1.2 Kg
Operating Temp.	0°C ~ +45°C
Storage Temp.	-10°C ~ +70°C

Multi-Brand IR Remote Controller

1. Initial Setting

1.1 DEVICE DEFAULT : STB

1.2 MODEL DEFAULT

STB ----- #001 (ULTRAPLUS ONLY)
TV ----- #001
DVD ----- #001
VCR ----- #001

2. Device Keys

Device Keys are used for device changing.

Case of the model which POWER button comes to share with power on and power off, the DEVICE button operates with power on, the POWER button operates with power off(LED ON).

3. Code No. Checking(Number Call)

- Step 1. Press the DEVICE and OK button during about 2.5 seconds at the same time.
DEVICE LED on.(Set mode)
Step 2. Press the INFO button.
LED will blink according to inputted mode number on the device.
Case of digit 0, it blinks 10 times.

4. Setting Guide

When there is no input during about 20 seconds from set mode, LED is turn off and set mode is canceled.

4.1 Using Device Code Number

- Step 1. Press DEVICE and OK button during about 2.5 seconds at the same time.
DEVICE LED on.(Set mode)
Step 2. Input three digit code numbers.
DEVICE LED will blinks.
Step 3. Press DEVICE button.
DEVICE LED will blink twice.

4.2 Using UP and DOWN buttons

- Step 1. Press DEVICE and OK button during about 2.5 seconds at the same time.
DEVICE LED on.(Set mode)
Step 2. Press UP or DOWN button until DEVICE turns off, one and one.
Step 3. If your DEVICE is turn off
Press DEVICE button.
DEVICE LED will blink twice.

5. Key Table

NO	STB	TV	VCR	DVD
1	DEVICE	DEVICE /POWER ON	DEVICE /POWER ON	DEVICE /POWER ON
2	POWER		POWER	POWER
3	RECORD		REC	OPEN/CLOSE
4	STOP		STOP	STOP
5	PAUSE		PAUSE	PAUSE
6	REWIND		REW	REW
7	PLAY		PLAY	PLAY
8	FAST FORWARD		FF	FF
9	PREV FILE			SKIP -
10	NEXT FILE			SKIP +
11	RED	UP		
12	GREEN	DOWN		
13	YELLOW	LEFT		VOL-
14	BLUE	RIGHT		VOL+
15	UP	CH+	CH+/TRK+	UP
16	LEFT	VOL-	VOL-	LEFT
17	OK	SEL/OK		SEL/OK
18	RIGHT	VOL+	VOL+	RIGHT
19	DOWN	CH-	CH-/TRK-	DOWN
20	EPG			
21	MUTE	MUTE	MUTE	MUTE
22	INFO	INFO		
23	MENU	MENU		MENU
24	RECALL	LAST		
25	SAT			
26	EXIT	EXIT		
27	PLAY LIST			
28	FAV			
29	1	1	1	
30	2	2	2	
31	3	3	3	
32	4	4	4	
32	5	5	5	
34	6	6	6	
35	7	7	7	
36	8	8	8	
37	9	9	9	
38	TV/RAD			
39	0	0	0	
40	TV/SAT	TV/VCR	TV/VCR	
41	TT/Sub			
42	AUDIO			



6. Code Table : TV

Manufacturer/Brand	Set-Up Code Number
ADMIRAL	137 204
ADYSON	159 219
AKAI	038 010 108 132 133 135 139 140 156
AKURA	064 086 108 110 155 171
ALBA	064
ALLSTAR	108
AMSTRAD	006 157
AMWAY	108
ANITECH	010 108 185 219
ANTECNO	064
ARC EN CIEL	173 179 239
ASA	087 102 108 235 236
ASBERG	185
ASORA	171
ATLANTIC	089 197
AUDIOSONIC	085
AUTOVOX	159 163 197
BANK	232
BEKO	085 086 108 250
BESTAR	086
BLAUPUNKT	091 092 096 097 098 099 210 253
BONDSTEC	163
BOSCH	210
BRANDT ELECTRONIQUE	173 179 225 239
BRIONVEGA	204
BSR	144
BUSH	139 144 232
CENTURY	165 204
CGE	139 165 210
CIE	108 170
CLATRONIC	010 064 108 144 149 159 164 165 171 185
CLARIVOX	031
CONDOR	108 149 191
CONIC	219
CONTEC	171 222
CONTINENTAL EDISON	173 179 225 239
COSMOS	108
CROSLEY	165 204
CROWN	085 086 108 144 171 185
CS-ELECTRONICS	064
DAEWOO	108 120 127 170

Manufacturer/Brand	Set-Up Code Number
DANSAI	010 219
DE GRAAF	108 134
DECCA	108 159 161 162 184 189 190 206
DECCAVIDEO	108
DUAL	233
DUMONT	204
ELBE	058 144 157 160 192 246
ELBIT	108 248
ELECTROVENDA	108
ELEKTRONIKA	108
ELIN	108
ELITE	064 149
ELMAN	144
ELTA	010 171
EMERSON	108 204
ESC	108
ETRON	133
EUROPHON	144 159
EXPERT	089
FENNER	171
FERGUSON	078 079 160 182 195 198 199 200 201 202
FINLANDIA	194 195
FINLUX	008 087 102 104 105 107 108 140 144 159 161 189 235 236
FIRST-LINE	144
FISHER	086 208 222 233
FORMENTI	108 149
FRABA	108
FRONTECH	171 220
FUBA	073 109
FUJITSU GENERAL	088 159 197
FUNAI	010
GALAXIS	108 185
GALERIA	171
GBC	137 144 171
GEC	011 108 129 147 159 189
GELOSO	064 137 144 164 171
GENERAL	171
GENERAL TECHNIC	171
GOLDHAND	159 171
GOLDSTAR	001 108 110 144 159 163 166 171 191 219 237 033
GOODMANS	064 108 109 110 120 159 170 171

Manufacturer/Brand	Set-Up Code Number
GORENJE	086
GPM	010 064
GRANADA	027 105 108 111 121 134 140 159 162 167 187 194 195 238
GRUNDIG	091 092 093 094 095 097 098 100 101 232 238
HCM	010 108 159 171
HIFIVOX	173 179 239
HINARI	010 064 108 133 171
HIT	204
HITACHI	011 013 015 017 021 022 023 024 028 029 030 035 039 040 041 053 054 055 056 057 120 127 128 129 134 135 140 143 145 147 151 156 159 173 193 219
HYPER	159 163 171
ICE	010 064 108 171
IMPERIAL	108 139 144 165
INGERSOLL	171
INNO HIT	159 189 237
INTERBUY	010
INTERCORD	233
INTERFUNK	108 109 113 130 133 134 135 137 141 146 147 148 165 179 210
INTERVISION	010 086 108 132 144 166
IRRADIO	163 235 237
ITC	144 159
ITS	010 064 171
ITT	141 151 186
JVC	169
KAPSCH	089 147 148 197
KARCHER	108 274
KATHREIN	109
KENDO	108 137 157
KENNEDY	197
KNEISSEL	108
KORTING	086 204 209
KUBA	233
KUBA ELECTRONIC	233
KURA	134
LENCO	108 170
LG	001 108 110 144 159 163 166 171 191 219 237 033
LIESENKOTTER	108 210
LIFETEC	010 064 108 170

Manufacturer/Brand	Set-Up Code Number
LOEWE	109 113 204 205
LOGIK	227
LUMA	137 197
LUXOR	102 104 132 133 134 135 138 140 143 145 153 156 186 237
M ELECTRONIC	103 104
MAGNADYNE	163 164 204
MAGNAFON	199
MAGNASONIC	108
MARANTZ	108
MARSHAL	064
MATSUI	108 159 171
MERRIT	132
METZ	092 097 098 100 101 108 204 207 254
mitsubishi	075 076 077 097
	113 204 222 224 240
MIVAR	159 235
MNARTT	007
MTC	086 109 134
MULTITECH	159 171 185
MURPHY	232
NAONIS	137
NECKERMANN	037 059 092 098 100 101 108 109 113 115 118 119 134 135 137 143 157 159
NEI	064 108
NIKKAI	219
NIKKO	108
NOBLIKO	232 235
NOGAMATIC	173 179 239
NOKIA	014 019 032 102 103 104 108 132 133 134 135 138 140 141 145 146 147 148 156
NORDMENDE	129 173 179 180 181 193 195 225 226 228 239
NORMN	108
NOVA	087
OCEANIC	032 103 104 135 140 156
OKANO	108
ONWA	010 064
ORAVA	108
ORBITER	086
ORION	059 064 108 110 118 219
OSAKE	106



Manufacturer/Brand	Set-Up Code Number
OTTO-VERSAND	002 005 014 059 081 082 083 085 092 097 098 100 101 108 109 111 113
PAEL	235
PANASONIC	002 003 005 167 168 229
PATHE CINEMA	144
PATHE MARCONI	173 179 225 239
PHILCO	108 139 144 148 165 204
PHILIPS	065 066 067 068 069 092 108 109 111 112 114 115 116 119 122 124 125 193 212 251 252
PIONEER	193
PRANDONI-PRINCE	137 235
PRIMA	219
PRO VISION	108
PROFEX	108 171
PROFITRONIC	108
QUELLE	038 002 010 014 019 059 072 086 087 088 092 097 098 100 101 102
RADIOLA	108
RADIOTONE	010 085 108 171
REDIFUSSION	187
REVOX	109
REX	088 089 137 157 158 164 197 246 247
RFT	064 085 135 204
RITAR	138
ROADSTAR	108
ROSITA	171
SABA	079 146 147 173 179 181 193 195 225 226 239
SAISHO	159
SAKIO	171
SALORA	019 032 103 104 132 133 134 135 137 138 140 142 143 145 156 237 241
SAMBERS	235
SAMSUNG	004 010 086 108 117 126 171 220 237
SANY	193
SANYO	014 018 019 020 032 034 071 086 087 189 218 221 222 223
SCHNEIDER	064 088 108 133 141 159 163 233

Manufacturer/Brand	Set-Up Code Number
SEG	010 064 108 144 159 165 171 185 219
SEI-SINUDYNE	108 204 212
SELECO	088 089 137 157 197 222
SENTRA	064 133
SHARP	081 082 083 222
SHINTOM	108
SHINTOSHI	108
SHIVAKI	108
SIAREM	204
SIEMENS	092 096 097 098 100 101 108 210 218 219 221
SIESTA	085
SILVER	010 064
SINGER	108 164 204
SINUDYNE	118
SOLAVOX	133
SONOLOR	140 156
SONTEC	108
SONY	072 074 211 212 213 214 215 216 217 222
SPECTRA	170
STARLITE	108 171
STARLUX	171
STERN	088 089 137 157 197
SUNSTAR	108 171
SUPERTECH	108 139 171
TADISTAR	108
TASHIKO	108
TASHIKO	159 218
TEC	108 139 144 159 170 171
TECHLINE	185
TECHNISAT	108 165
TECNISON	108 171
TEKON	171
TELEAVIA	173 178 179 225 239
TELEFUNKEN	079 177 179 181 193 195 200 210
TELEOPTA	171
TELERNT	109
TELETECH	165 171
TELETEX	115
TELETON	088
TELETON	089 134 159 197
TENSAI	064 108 144 149 171 191
TENSON	171

Manufacturer/Brand	Set-Up Code Number
TESLA	204
THOMSON	078 079 134 173 178 179 181 193 195 225 239
THORN	011 014 018 026 028 066 072 075 087 097 102 108 116 135 141 145 146 160
THORN-FERGUSON	160 188 200 227
TOSHIBA	012 026 036 037 222 232
TOWADA	144 185
TRISTAR	010 064
TRIUMPH	219 236
UHER	089 108 109 149 185 197 233
ULTRAVOX	108 164 185 204
UNIVOX	204

Manufacturer/Brand	Set-Up Code Number
VESTEL	108
VIDEOSAT	165
VIDEOTON	178 193
VIDEOWAY	230
VISION	108 149
VOXSON	137 204
WALTHAM	178
WATSON	064 108 149 171
WEGA	208 222
WHITE WESTINGHOUSE	108 110 149
YOKO	010 064 108 144 159 164 170 171
ZANUSSI	137 197
ZENITH	231



7. Code Table : VCR

Manufacturer/Brand	Set-Up Code Number
ADMIRAL	025 053
AIKO	117
AIWA	034 161 101
AKAI	043 046 124 146
AMERICA ACTION	117
AMERICAN HIGH	031
AMPRO	072
ANAM	031 103
ASHA	040
AUDIO DYNAMICS	012 023 043
AUDIOVOX	101
BEAUMARK	040
BROKSONIC	035 037 129 025
CALIX	101
CANON	028 031
CAPEHART	108
CCE	024 117
CINERAL	117
CITIZEN	101 117
COLT	148
CRAIG	003 040 135 024 101
CURTIS MATHES	031 041
CYBERNEX	040
DAEWOO	005 108 117 017 065 007 010
DAYTRON	108
DBX	012 023 043
DYNATECH	034 053
ELECTROHOME	059 101
ELECTROPHONIC	101
EMERSON	006 029 035 037 129 153 017 025 027 031 034 036 046 101 131 138 117
FISHER	003 010 008 009
FUJI	031
FUNAI	034
GARRARD	034
GE	031 072 144 147 063 107 109 040 053
GO VIDEO	132 155 040 136
GOLDSTAR	101 004 012 020
HARLEY DAVIDSON	034
HARMAN KARDON	012 045
HARWOOD	024
HITACHI	004 026 034 043 063 137 150

Manufacturer/Brand	Set-Up Code Number
HQ	034
HUGHES	004
INSTANTREPLAY	031
JCL	031
JCPENNEY	004 012 031 040 101
JENSEN	043
JVC	048 043 055 060 130 150 152 012 031
KEC	101 117
KENWOOD	034 150 014 048
KLH	024
KODAK	031 101
LG	101 004 012 020
LLOYD	034
LOGIK	024
LXI	003 009 017 034 101 004 106
MAGIN	040
MAGNASONIC	117
MAGNAVOX	067 031 034 068 041 170
MARANTZ	067 069 012 031
MARTA	101
MATSUI	027 030
MATSUSHITA	031
MEI	031
MEMOREX	040 101 003 014 031 034 053 072 134 139 025
MGA	045 046 059
MGN TECHNOLOGY	040
MINOLTA	004 020
MITSUBISHI	059 061 051 004 046 020 045 053
MOTOROLA	031 053
MTC	034 040
MULTITECH	024 034
NEC	012 023 043 048
NIKKO	101
NOBLEX	040
NORDMENDE	043
OLYMPUS	031
OPTIMUS	053 101
PILOT	101
PIONEER	021 004 048
PORTLAND	108
PROFITRONIC	040

Manufacturer/Brand	Set-Up Code Number
PROTEC	024
RCA	107 109 144 041 031 004 020 034 040 140 147 158 053
SALORA	014
SAMSUNG	040 017 107 109 113 115 124 122
SANKY	053
SANSUI	043 135 048 025 034
SANYO	003 014 040 134
SCOTT	017 037 129 131
SEARS	003 004 008 014 017 081 101 010 031 034
SHARP	053 031 054 159
SHINTOM	024
SHOGUN	040
SINGER	024
SONY	001 057 058 003 052 053 031 154 171 009 034
SOUNDESIGN	034
STS	004
SYLVANIA	031 034 059 067

Manufacturer/Brand	Set-Up Code Number
SYMPHONIC	034
TANDY	034 010
TATUNG	043
TEAC	034 043
TECHNICS	031 070
TEKNIKA	031 034 101
THOMAS	034
TMK	006 040
TOSHIBA	017 131 004 008 059 082 150
TOTEVISION	040 101
UNITECH	040
VECTOR RESEARCH	012
VIDEO CONCEPTS	012 034 046
VIDEOSONIC	040
WARDS	003 004 017 024 031 034 040 053 054 131
WESTINGHOUSE	024 025
XR-1000	024 031 034
YAMAHA	012 034 043
ZENITH	072 034 001 058 080 101 153 048 025

**8. Code Table : DVD**

Manufacturer/Brand	Set-Up Code Number
AIWA	202
AKAI	199
ALPINE	221
APEX DIGITAL	251 246 182 183
ARCAM	215
CARY AUDIO DESIGN	184
CLASSE	193
COBY	212
CYBERHOME	220 213
DAEWOO	220
DENON	226 241
FUNAI	208 211
GE	230 231
GOLDSTAR	235 239
GO VIDEO	201 187 188 189 194
HARMAN KARDON	243
HITACHI	223
HITEKER	246
INTEGRA	198
JVC	238
KENWOOD	216
KISS	197
KLH	210
LG	148
MAGNAVOX	254 237 211
MARANTZ	253 242
MCINTOSH	217
MEMOREX	207
MINTEK	200

Manufacturer/Brand	Set-Up Code Number
MITSUBISHI	227
MYRYAD	224
NAD	247 239
NAKAMICHI	225
ONKYO	240
OPTIMUS	229
PANASONIC	228 206 226
PHILIPS	253 237 214 242
PIONEER	255 222 229
POLAROID	195
PRIMARE	185 186
PROCEED	245
PROSCAN	230 231
RCA	230 231
SAMSUNG	236 248 201 191
SANSUI	205
SANYO	204
SENSORY SCIENCE	189 190
SHARP	252
SONY	001 232 218 203
SYLVANIA	208 211
SYMPHONIC	208 211
TATUNG	224
TECHNICS	228
THETA DIGITAL	229
TOSHIBA	233 244 219 205 192 196
VENTURER	209
YAMAHA	249 226 181
ZENITH	239 226 235 239